NATIONAL RADIO ASTRONOMY OBSERVATORY

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The Green Bank Facility of the National Radio Astronomy Observatory (NRAO) thanks the Commission for this opportunity to provide commentary on the FCC's Notice of Proposed Rule Making (NPRM), Docket# 07-101, "Amendment of Parts 2 and 25 of the Commission's Rules to Allocate Spectrum and Adopt Service Rules and Procedures to Govern the Use of Vehicle Mounted Earth Stations in Certain Frequency Bands Allocated to the Fixed Satellite Service". In the NRPM, the FCC seeks comment on whether to license Vehicle-Mounted Earth Stations ("VMES") as an application of the fixed-satellite service ("FSS") in the conventional and extended Ku-band frequencies.

As you may or may not be aware, the proposed VMES uplink band, 14.0-14.5 GHz, is of particular interest to radio astronomers, as it contains the 14.488 GHz formaldehyde line. The line is extensively observed by astronomers who come to Green Bank to study comets, star formation, interstellar matter and galactic dynamics.

As the protections afforded our facility under the provisions of the National Radio Quiet Zone (NRQZ) do not pertain to mobile transmitters, additional protection would be required to keep VMES uplink signals from interfering with Ku band observations. In the NTIA allocation, footnote US 203 states:

"Radio astronomy observations of the formaldehyde line frequencies 4825-4835 MHz and 14.470-14.500 GHz may be made at certain radio astronomy observatories as indicated below….Every practicable effort will be made to avoid the assignment of frequencies to stations in the fixed or mobile services in these bands."

As GPS receivers are already a part of the VMES systems, adding exclusion zones would be a simple matter of programming the systems to disable transmission while they are within an exclusion zone. Such a measure would require only a few lines of code, no extra hardware cost for these systems, and as such would seem to fall under the definition of "practicable effort". Exclusion zones can be determined based upon the technical characteristics of the VMES system in question, the sensitivity of the radio astronomy receivers, and possibly local terrain shielding as well.

Protecting a facility for ground-based radio astronomy is an increasingly difficult challenge as spectral occupancy increases; without strong federal support for exclusion zones, we cannot hope to maintain the environment necessary for our research.

Sincerely,

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